sunstroke. Their occurrence is dependent, obviously, upon conditions of atmospheric heat and humidity. When the summer months of any year are featured by frequent and protracted periods of high temperature, there result relatively large numbers of both fatal and nonfatal heat strokes.

How great are the variations in the death rate from this cause in various years will be news to the average person. Few realize that fatal heat prostrations could be 33½ times as numerous in one year as in another. Yet this is precisely what has happened among the industrial policyholders of the Metropolitan Life Insurance Co. during the period 1911 to 1922. In 1911, 6.7 policyholders per 100,000 died from the effects of heat; while in the year 1920, only 0.2 per 100,000 died from this cause. For the United States registration area, rates are available for a period of 21 years (1900 to 1920, inclusive). Here there is even a larger margin between the maximum heat fatality rate, which was 12.8 per 100,000 in 1901, and the minimum, which was 0.3 in 1920. There were about 43 times as many deaths from heat and sunstroke per 100,000 population in the maximum as in the minimum year. For no other single cause has there been as marked variation in the death rate during the past two decades as for heat and sunstroke.

Heat fatalities register a much higher death rate among males than among females. This is inevitable because men are engaged in occupations which subject them more often to the hazards of heat. Colored persons have a higher death rate than whites and this can not be ascribed to the fact that colored people are relatively more numerous in the South. Experience has shown that even in the Southern States, the heat prostration death rate of colored persons exceeds that for whites.

The fact is that the highest death rates from the effects of heat are not found, as might be supposed, in the Southern States. North and South Carolina, for example, show, year after year, very low death rates from this cause, and the figures for Kentucky, Tennessee, and Virginia are well below the average for the registration area. The lowest rates usually prevail in the Mountain States, particularly in Colorado and Montana; in Washington on the Pacific coast, and in Maine and Vermont of the New England States. The States which in most years show above-average rates are Michigan, Wisconsin, Indiana, and Ohio in the East North Central region, particularly the first two; all of the Middle Atlantic States, New York, New Jersey, and Pennsylvania; Connecticut and Rhode Island in New England; Maryland in the South Atlantic region and Missouri in the West North Central section.

Comparison of the figures year after year snows clearly that the death rate from this cause is very much higher in the cities than in the rural districts. This is unquestionably due to the environmental conditions that obtain for city workers and city dwellers as well as their lower resistance. Those engaged in agricultural pursuits are notably less subject to the effects of heat.

Mortality from this cause has a very decided age incidence. Infants are particularly susceptible and elderly people are even more so. About one-half of the deaths from heat and sunstroke are those of persons over 50 years of age. It is obvious that during the heated season nothing should be left undone to protect infants from exposure and to give all possible attention to their diet. Older persons should guard as much as possible, not only against exposure to high temperatures, but against overactivity during the summer months.

THE NATURE OF INSENSIBLE PERSPIRATION IN HEAT REGULATION.

[Editorial] from *The Journal of the American Medical Association*, July 1, 1922, p. 45, vol. 79, No. 1.]

Every person continually experiences a loss of water from the skin in quantities that may become not inconsiderable under certain circumstances. The cutaneous excretion of water is determined mainly by the need for regulating the temperature of the body, so that the amount leaving by way of the skin depends on the heat production of the body or on the external temperature, and is very little affected by the quantity of fluid consumed. Under ordinary conditions, in which no visible collection of fluid on the skin surfaces occurs, the water lost is included in the so-called insensible perspiration. According to observations on anomalous persons without sweat glands, the evaporation of water from the nonsweating skin may amount to 800 gm. (28 ounces) a day. In normal persons it will be noticed that the quantity of water thus given off increases with a rise of environmental temperature slowly up to a certain degree, and then rises rapidly. This sudden increase occurs simultaneously with the activity of the sweat glands, resulting in the formation of visible sweat. The insensible perspiration is therefore conventionally regarded as represented by evaporation of water from the surface of the cuticle itself apart altogether from the sweat glands. If the removal of heat through the loss of water by insensible perspiration is purely a physical process, as it is commonly assumed to be, the transfer should be affected not only by temperature factors but also, to some extent at least, by the humidity of the surrounding air. If the skin is to be regarded, so far as the insensible perspiration is concerned, merely as a membrane through which water is diffused into air, obviously the process should be retarded when the external medium tends to be more saturated with moisture. Several investigators have found, however, that in fact this is not necessarily the case. Most recently, for example, in Schwenkenbecher's clinic at Marburg, Moog [1] has observed that at a fairly constant temperature of 25° C. (77 F.) increases of from 30 to 40 per cent in the relative humidity may actually be attended by increased invisible perspiration through the skin. If such data are accurate, one can not escape the conviction that this loss, instead of being merely a purely physical process dependent on the composition and temperature of the air, is a physiologic one varied by the necessities of heat regulation in the body. Perhaps we may think of it, with Schwenkenbecher, as an insensible secretion of sweat rather than a mere diffusion of water through the skin membrane.

[1] Moog, O.: Der Einfluss der relativen Luftfeuchtigkeit auf die unmerkliche Hautwasserabgabe, Deutsch. Archiv. f. klin. Med. 138: 181 (Jan. 24) 1922.

THE RYKATCHEF FAMILY.

[Reprinted from *Nature*, London, May 26, 1923, p. 716.]

News has reached this country [England] of the family of the late General Rykatchef, who was director of the Russian Meteorological and Magnetic Service until shortly before the war.

General Rykatchef died on April 1, 1919, his wife on November 22 of the same year. The last survivor of three sons died on February 24, 1920. A son-in-law perished on July 6, 1919, leaving five young children. They, with their mother and her sister, who is well known to meteorologists and magneticians as her father's constant companion on his international journeys, are the only survivors of a once large family.